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PROCEDURE FOR PERSONNEL
CLEAN ROOM DEPARTMENT

by
F. N. LeDoux

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Goddard Space Flight Center
Greenbelt, Maryland

FOREWORD

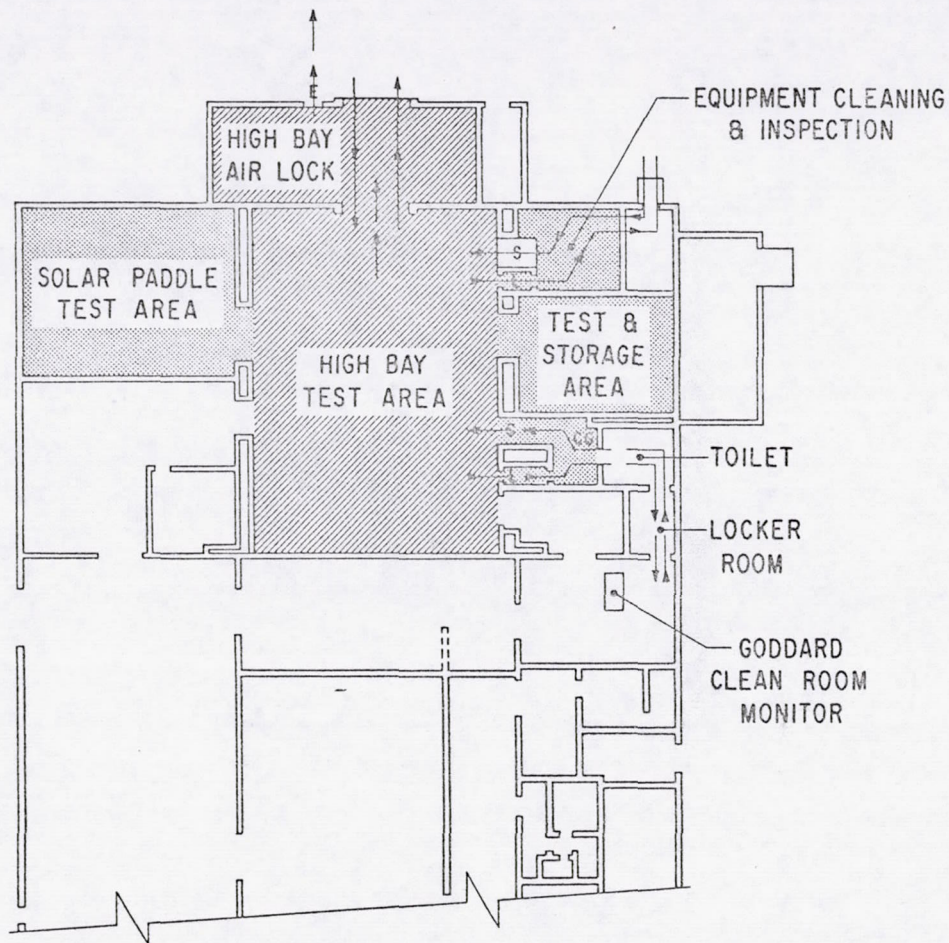
The AIMP spacecrafts' mission in the near vicinity of the moon makes it mandatory that any particulate matter capable of sustaining microbial life forms are held to a bare minimum. Therefore, it is required that field operations such as experiment checkouts and/or work conducted on a component part of the spacecraft system be carried out in a clean room environment.

During any operation in a clean room environment where a component is handled or a test is being performed on the spacecraft, it is highly probable that particulate and/or microbiological contamination from personnel and/or the tools used in conducting tests will be released and transferred. In order to minimize the release and/or transfer of this contamination, it is necessary that a set plan or procedure be followed so as to reduce to the lowest level possible the biological and particulate population. It is with this aim in mind that this procedure is written.

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SPACECRAFT CLEAN ROOMS BUILDING "AE"



LEGEND:



CLASS 10,000-Laminar



CLASS 10,000-Conventional



EQUIPMENT, Direction of Flow



PERSONNEL, Direction of Flow

E — EMERGENCY EXIT

CG — CLEAN GARMENT CHANGE ROOM

S — PERSONNEL AIR SHOWER

ES — EQUIPMENT AIR SHOWER

L — AIR LOCK

10 0 5 10 15 20

GRAPHIC SCALE IN FEET



1.0 Purpose of Document

- 1.1 The purpose of this document is to outline a procedure that is to be followed in supporting a decontamination effort during the Anchored Interplanetary Monitoring Platform (AIMP) spacecraft field operation.

2.0 Air Lock, Hi-Bay Clean Room

- 2.1 Decontamination and assembly of the Goddard Down Flow Unit is to be performed in this area.

- a. Remove stubborn deposits from equipment with Bon-Ami and a cellulose sponge that has been first dampened with distilled water.
- b. Clean all exterior surfaces with a clean cellulose sponge dampened with distilled water.
- c. Decontaminate all exterior surfaces of equipment with a prepared solution of alcohol and water. Solution to be 85% isopropal alcohol and 15% distilled water.
- d. Apply decontaminating solution with a clean cellulose sponge. Sponge is to be soaked in solution and wrung out with hands so that solution does not drip from sponge.

2.1.2 Decontaminate Spacecraft Dolly

- a. Remove strippable coating from dolly.
- b. Decontaminate as per 2.1 c thru d this procedure.

2.1.3 Prepare G.S.E. for decontamination

- a. Remove all tape and paper from units.
- b. Remove connecting cables.
- c. Remove all air inlet filters.
- d. Vacuum all exposed surfaces of equipment.

- e. Decontaminate as per 2.1 a thru d this procedure.
- f. Replace air inlet filters with new filter material.
- g. Fill voids in instrument racks with cover plates. Where not practical tape openings with pressure sensitive tape.
- h. Apply pressure sensitive tape to rolling surfaces of all wheels on equipment.

2.1.4 Clean room garment requirements

- a. Street clothes in air lock area during cleaning preparation.
- b. Rubber gloves for hands when decontaminating equipment with alcohol solution.

3.0 Equipment Cleaning and Inspection Preparation Area

3.1 Decontaminate electronic equipment connection cables.

- a. Pass cables between two sponges that have been soaked in alcohol solution.
- b. Clean and decontaminate all other equipment such as mitocs, telephones, hand tools and lead pigs in a like manner.

3.1.1 Clean room garments required in equipment cleaning and inspection preparation area

- a. Street clothes
- b. Rubber gloves when using alcohol solution

4.0 Hi-Bay Clean Room Department

- 4.1 Personnel in any of the clean room areas are to observe the following listed clean room regulations and adjust accordingly.

- a. Individuals having respiratory or skin ailments will not be allowed to work in the clean room areas.
- b. Individuals with colds or severe sunburn are not permitted to work in clean room areas.
- c. No unauthorized personnel.
- d. Only test fixtures, tools, jigs and assembly fixtures needed to perform the required task will be permitted in clean room.
- e. No abrasives such as files, crocus cloth etc. are permitted.
- f. No shredding or masking tapes are permitted.
- g. Never leave exposed parts or components on work benches.
- h. Only approved clean room garments will be worn in the various clean room areas as spelled out in sections 5.0 thru 5.4 this procedure.
- i. No smoking or eating will be permitted in clean rooms.
- j. No person having cosmetics such as, after shaving talc, lip ice etc., or external medication will be allowed in clean room.
- k. No pencils will be allowed in clean room areas. Ball point pens and lint-free paper are permitted.
- l. No horse-play will be tolerated. Movements are to be slow and rhythmic.
- m. Pick up your feet and lay them down; don't schuffle.
- n. Don't swing your arms, your movements should be slow.
- o. No watches and/or jewelry are to be worn while in the clean room areas.
- p. Scratching head, eyebrows or exposed skin areas are taboo.

- q. Coveralls are not to be unzipped when in the clean room areas.
 - r. No skin areas are to be exposed between gloved hand and coveralls.
 - s. Emergency exits will only be used in legitimate emergencies.
 - t. No equipment will be allowed in the clean room areas that has not been first cleaned and decontaminated.
 - u. No more than 10 personnel will be allowed in the Hi-Bay clean room and/or the test and storage areas at any one time.
 - v. No more than two personnel will be allowed to work at one time under the Goddard Down Flow Unit.
 - w. Hand tools used in conducting assembly, disassembly or test shall be stored in decontaminating solution when not in use.
 - x. AIMP project and/or custodial personnel are not to disturb or be in the near vicinity of any clean room monitoring equipment.
 - y. Experimentor's equipment is to be checked out in the test area of clean room.
- 4.1.1 The clean room regulations as stated above are necessary to assure the asepsis handling of the AIMP spacecraft during the phase of experiment check-out. However, additional regulations may be required.
 - 4.1.2 Any request for waiver from any of the above must be made to the AIMP project manager or his assistant.

5.0 Clean Room Garment Requirements

5.1 Hi-Bay Area and Air Lock

- a. Coveralls

- b. Caps
- c. Shoe covers
- d. Cotton gloves

5.2 Test & Storage Area

- a. Coveralls
- b. Caps
- c. Shoe covers
- d. Cotton gloves

5.3 Equipment Cleaning and Inspection Area

- a. Coveralls
- b. Caps
- c. Shoe covers
- d. Sterile rubber gloves, surgeons type.

5.4 Goddard Down Flow Unit

- a. Coveralls
- b. Caps
- c. Hoods
- d. Shoe covers
- e. Face masks
- f. Cotton and/or rubber gloves, surgeon type.

NOTE: Clean room garments must not be worn outside of clean room areas.

6.0 Traffic Control

6.1 Goddard clean room monitor will be stationed outside of the entrance to the clean room complex.

a. His prime duty will be to monitor the ingress and egress to the clean room areas.

6.1.1 Personnel ingress will be controlled by the AIMP project management.

6.1.2 A list of names of individuals that have been authorized ingress to the clean room complex will be furnished the clean room monitor on a daily basis.

a. Only those individuals whose name appears on the list for a particular day will be allowed to enter the clean room on that day.

b. Any waiver to the above must come from the AIMP project management.

6.2 Ingress to the clean room areas shall be as follows.

6.2.1 Have name logged in at the Goddard clean room monitor desk.

6.2.2 Proceed into locker area

a. Remove all articles from pockets.

b. Remove wrist watches and/or other jewelry.

6.2.3 Store all articles, removed from person, in the locker provided.

a. Retain key to this locker in your pocket.

b. Ball point pens may be retained if your operation requires its use.

c. Lead pencils are not allowed in the clean room areas.

- d. Store any outer-garments in the large compartment of the storage lockers.

6.2.4 Proceed into the toilet room.

- a. Thoroughly wash hands and face and scrub fingernails.
- b. Dry hands with the hot air dryers provided.
- c. Clean shoes with the shoe cleaner provided.
- d. Walk onto the shoe cleaner mat and remain on mat for approximately 20 seconds.

6.2.5 Proceed into the garment change area

- a. Take clean garment from the white storage cabinet that faces the entrance door.
- b. Discard the wrapping into the container provided.
- c. Coveralls go on first.
- d. Garments are to be buttoned at ankles, collars and wrist.
- e. Place booties over shoes; button and tie at the ankles.
- f. All hair from head is to be inside the head covering used.
- g. Clean booties in shoe cleaner provided.
- h. Glove hands.
- i. Walk onto shoe cleaner mat and remain for approximately 20 seconds.
- j. Open door to air-lock with elbow.

6.2.6 Proceed into the air-shower

- a. Raise arms shoulder high and slowly turn body.

b. After air-shower has shut down open door to clean room using elbow or other part of body other than the gloved hands.

6.2.7 While in the clean room areas, department as outlined in section 4.0 this procedure shall prevail.